CLAIMS

1. A liquid crystal display apparatus having a liquid crystal interposed between two substrates and a backlight as a light source for the liquid crystal, comprising:

a luminance sensor formed on one of the substrates (this substrate is referred to as the first substrate), the luminance sensor and thin film devices as pixels being formed on the first substrate in the same process, the luminance sensor that detects the luminance of the backlight; and

a control circuit that generates a drive signal that keeps the luminance of the backlight almost constant on the basis of a detection signal detected by the luminance sensor.

2. The liquid crystal display apparatus as set forth in claim 1,

wherein the backlight includes a light emitting device array and a diffusion portion, the light emitting device array being an arrangement of repetition of at least three color light emitting devices, the diffusing portion that diffuses color rays emitted from the light emitting device array and generates white light.

3. The liquid crystal display apparatus as set forth in claim 1,

wherein the backlight includes a light

emitting device array, a diffusion portion, and a light guide portion, the light emitting device array that is an arrangement of repetition of at least three color light emitting devices in a line shape, the diffusion portion that diffuses color rays emitted from the light emitting device array and generates white light, the light guide portion that equally guides the color rays emitted from the light emitting device array to the entire surface of the diffusion portion.

4. The liquid crystal display apparatus as set forth in claim 1,

wherein the substrate on which the thin film devices are formed when viewed from the liquid crystal side is disposed on the backlight side, at least one luminance sensor being disposed in a screen on which the pixels are formed, a light shield portion being disposed on the other substrate (this substrate is referred to as the second substrate) so that the light shield portion is opposite to the luminance sensor.

5. The liquid crystal display apparatus as set forth in claim 1,

wherein the second substrate opposite to the first substrate on which the thin film devices are formed is disposed on the backlight side when viewed from the liquid crystal, at least one luminance sensor being disposed outside a screen on which the pixels of the thin film devices are formed, and

wherein the liquid crystal display apparatus further comprises:

a housing that houses the first substrate, the second substrate, the backlight, and the control circuit and that covers the luminance sensor.

6. The liquid crystal display apparatus,

wherein the second substrate opposite to the first substrate on which the thin film devices are formed is disposed on the backlight side when viewed from the liquid crystal,

wherein the luminance sensor detects an output voltage into which an off current due to light excitation corresponding to luminance of light emitted from the backlight is converted in the state that a thin film device that composes the luminance sensor is sufficiently turned off, and

wherein the liquid crystal display apparatus further comprises:

an input signal generation portion that generates an input signal having a repetitive period that is shorter than a period for which the liquid crystal transmits light and that the user does not recognize as flickering, the input signal generation portion that supplies the input signal to the thin film device that compose the luminance sensor;

a sample hold portion that sample-holds a detection signal of the luminance sensor; and

a control circuit that generates a drive signal that keeps the luminance of the backlight almost constant on the basis of a signal sample-held by the sample hold portion.

7. The liquid crystal display apparatus as set forth in claim 6,

wherein the sample hold portion is formed on the first substrate on which thin film devices are formed.

8. The liquid crystal display apparatus as set forth in claim 1,

wherein color filters corresponding to at least three color light emitting devices are disposed on one of the two substrate,

wherein the luminance sensors are disposed corresponding to the light emitting devices and detect the luminance of each of the colors, and

wherein the control circuit generates drive signals for the light emitting devices corresponding to the luminance of each of the colors.

9. A luminance adjustment method for backlight as a light source of white light that is a mixture of rays emitted from an arrangement of repetition of at least three-color light emitting devices disposed on a liquid crystal display panel, thin film devices being formed as a screen on the liquid crystal display panel, a luminance sensor being disposed on the liquid crystal

display panel, comprising the steps of:

detecting luminance of the backlight;

generating a drive signal on the basis of the detected result at the first step; and

driving at least three-color light emitting devices with the drive signal generated at the second step and keeping the luminance of the backlight almost constant.

10. A liquid crystal display method for the luminance adjustment method for backlight as a light source of white light that is a mixture of rays emitted from an arrangement of repetition of at least three-color light emitting devices disposed on a liquid crystal display panel, thin film devices being formed as a screen on the liquid crystal display panel, a luminance sensor being disposed on the liquid crystal display panel of claim 9, comprising the steps of:

generates an input signal having a repetitive period that is shorter than a period for which the liquid crystal transmits light and that the user does not recognize as flickering and supplying the input signal to the thin film device that composes the luminance sensor;

sample-holding the detected signal of the luminance sensor on the basis of the input signal supplied at the first step;

generating a drive signal on the basis of the

signal sample-held at the second step; and

driving at least three-color light emitting devices with the drive signal generated at the third step so as to keep the luminance of the backlight almost constant.